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IEEE EDUCON 2010 Conference



2010



IEEE EDUCON 2010
IEEE Engineering Education 2010
The Future of Global Learning in Engineering Education

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April 14th - 16th, 2010, Madrid Spain



**EDUCON 2010 – Annual Global Engineering Education Conference
The Future of Global Learning in Engineering Education.**

Promoted by the IEEE Education Society

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Manuel A. Castro Gil - Edmundo Tovar Caro – Michael E. Auer - Manuel P. Blázquez Merino

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WELCOME FROM IEEE EDUCON 2010 CHAIRS

It is well documented that our modern society is characterized by rapid developing and ever-changing political, social, economical, technological and environmental situations. Consequently, our society of the 21st century makes great demands on its members in virtually every aspect of their lives. Members of the society must now keep pace with these mutable situations, adapt their skills and expertise with agility, collaborate, and compete to provide value to society. Technology subjects and the engineering domain are, in particular, affected by this situation.

As a result of this, educational approaches have changed over the last century from remedial repetitive learning to today's learning, which focuses on acquiring an understanding of how to become more independent in the learning process. Learning is no longer concentrated mainly in the first stages of human life through formal education and specific training in business, but it becomes a day-by-day routine over a human's life cycle. This situation requires new forms and channels in the learning process. Additionally, modern learning approaches must account for social and cultural aspects as well as the individual's profile including task and role-based aspects, interests, knowledge state, short-term learning objectives and long-term career goals. Thus processing and acquiring knowledge is a key to a modern learning pedagogy, but also content creation, collaboration and community-based practice for knowledge and skills development are important success factors.

IEEE Education Society partnership with the IEEE Region 8, is beginning a new global engineering education conference, IEEE EDUCON, held each year in selected cities throughout Europe, the Middle East, and Africa. The conference provides an interdisciplinary forum for academic, government and industrial collaboration on teaching methods, practical experiences and research toward improving the future of global engineering education. The IEEE EDUCON conference will attract participants from all over the world and will provide an interdisciplinary forum for academic, research and industrial collaboration on teaching methods, practical experiences and research towards the future of global Engineering Education.

The conference will cover papers in the categories of: research, development, evaluation and best practices that deal with learning Engineering Education in academic, organizational, and life-long learning settings including, but not limited to the following areas and their associated topics:

- Area 1: Infrastructure and Technologies for Engineering Education
- Area 2: Innovative Materials, Teaching and Learning Experiences in Engineering Education
- Area 3: Knowledge and Competencies in Engineering
- Area 4: Educational Methods and Learning Mechanisms in Engineering Education
- Area 5: Attracting, Engaging and Retaining Human Talent to Engineering

Manuel Castro (Spanish University for Distance Education, Spain), Edmundo Tovar (Technical University of Madrid, Spain) and Michael E. Auer (Carinthia Tech Institute Villach, Austria)
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Location

Wednesday 14, Madrid

CONFERENCE VENUE: UNED. Faculty of Humanities and Faculty of Sciences

Location: Campus “Senda del Rey”, close to “Puente de los Franceses”

Thursday 15, Ávila

CONFERENCE VENUE: Ávila's Conference Center (Centro de Congresos y Exposiciones Llenzo Norte de Ávila)

Location: Avenida de Madrid, 102 - 05001 Ávila

Friday 16, Madrid

CONFERENCE VENUE: UPM. School of Forestry Engineering and UPM's Central Headquarters

Location: Campus of “Ciudad Universitaria”

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KEYNOTES SPEAKERS

Susan M. Lord – Professor and Coordinator of Electrical Engineering, University of San Diego, San Diego, CA, U.S.A. President of the IEEE Education Society



Susan M. Lord received a B. S. with distinction in Electrical Engineering and Materials Science and Engineering from Cornell University and the M.S. and Ph.D. in Electrical Engineering from Stanford University. Author of over seventy publications, her teaching and research interests include electronics, optoelectronic materials and devices, service-learning, feminist pedagogy, lifelong learning, and engineering student persistence. From 1993-1997, Dr. Lord taught at Bucknell University. She is currently Professor and Coordinator of Electrical Engineering at University of San Diego (USD). Her research has been supported by several National Science Foundation (NSF) grants from various programs including a CAREER grant, instrumentation and laboratory improvement (ILI) grants, scholarships for STEM (SSTEM), gender in science and engineering (GSE), and innovations in Engineering Education. She is the Guest Co-Editor of a special issue of the International Journal of Engineering Education on Applications of Engineering Education Research. Dr. Lord has worked at SPAWAR Systems Center, NASA Goddard Space Flight Center, AT&T, and General Motors. She is a member of the IEEE, ASEE, SWE, and Tau Beta Pi. She has served on the national administrative boards of the IEEE Education Society (EdSoc) and the ASEE Education and Research Methods (ERM) Division. Dr. Lord served as the General Co-Chair of the 2006 Frontiers in Education (FIE) Conference and has served on the FIE Steering Committee since 2006. Dr. Lord served as Vice President of EdSoc for 2007-2008 and President for 2009-2010.

IEEE Education Society: Global Leader in Engineering Education

The IEEE Education Society (EdSoc) is pleased to be a sponsor of EDUCON and technical co-sponsor of TAAE. EdSoc leaders view this conference as vital for carrying out the mission of our society and believe that EDUCON will be at the forefront of global Engineering Education in the future. In this talk, I will describe some of the history of the Education Society, its recent strategic planning process, and its hopes for the future. What is the Education Society? In April 2009, EdSoc leaders developed new vision and mission statements to introduce EdSoc to the world. The vision of EdSoc is “The IEEE Education Society strives to be the global leader in Engineering Education”. The mission is “The IEEE Education Society is an international organization that promotes, advances, and disseminates state-of-the-art scientific information and resources related to the Society’s field of interest and provides professional development opportunities for academic and industry professionals”. Currently, EdSoc has about 3000 members globally including 30% from IEEE’s Region 8 (Europe, the Middle East, and Africa) and 10% from Region 9 (Central and South America). Strengths of the Education Society include being globally engaged, recognized, and sought after to collaborate in educational innovation, generating quality publications and conferences, and dedicated leadership.

Patricia Manson – Head of Unit, Cultural Heritage and Technology Enhanced Learning in the Directorate General Information Society and Media of the European Commission.



Patricia Manson has worked at the European Commission since the early 90s on ICT applications areas in the Community's research programmes and for the past 4 years has been involved in defining the research agenda and subsequent workprogramme for technology enhanced learning research and for its implementation through the funded projects. Prior to joining the Commission she worked in the UK on a research-funded post providing technology and market watch, as well as information and advisory services to the cultural heritage community on the adoption of ICTs.

Learning in the 21st Century: Technology-Enhanced Learning and European Research

The presentation will explore the challenges facing learning in the 21st century and describe the role of European research in technology enhanced learning in this changing context. Experience has revealed the importance of giving equal weight to the technologies, to the learning and to the improvements in learning and this balance is at the core of technology-enhanced learning.

Javier Uceda – Professor of the Automatic Control, Electronic and Computer Engineering Department at Technical University of Madrid. Rector of Technical University of Madrid



Javier Uceda received the M.Sc. and Ph.D. degrees from the Universidad Politécnica de Madrid (UPM), Madrid, Spain, both in electrical engineering. Since 1986, he has been a Professor of electronics with UPM. He has published several books and more than two hundred and fifty papers in international journals and conferences and he holds several national and international patents. He has been a member of the Editorial Board of the European Power Electronics and Drives Journal. His research activity has been developed in the fields of Power Electronic and Digital Electronic Systems where he has participated in numerous national and international research projects. His main contributions are in the field of switched-mode power supplies and dc/dc power converters for telecom and aerospace applications. In the year 2000 he was appointed Vice-Rector for

Research and Institutional Relations of the Technical University of Madrid, a post which he occupied until his election as Rector of the same University in March, 2004

Dr. Uceda is currently Fellow of the IEEE and a Senior AdCom member of the IEEE Industrial Electronics Society. He is a member of the Editorial Board of the European Power Electronics and Drives Journal and belongs to the Executive Council of the European Power Electronics and Drives Association where he is Vice-President. He has been Associated Editor of IEEE Transactions on Industrial Electronics. He was the Technical Program Committee Chairman of the IEEE Power Electronics Specialists Conference in 1992 and the General Chairman of the European Conference on Power Electronics and Applications in 1995. Prof. Uceda is also member of the Scientific Advisory Board of the Center for Power Electronics Systems (CPES), sponsored by the National Science Foundation in USA. Has received several individual and collective awards among which stands out the IEEE Third Millennium Medal.

Innovation in Engineering Education

Engineering is changing as a consequence of scientific and technological evolution and society needs and demands. Engineers need to understand the structure and behaviour of matter from nanoscale to extremely complex systems. Convergence of scientific and technological disciplines requires also an interdisciplinary approach in education. In this presentation some of the challenges and possible orientations in Engineering Education will be discussed.

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12:15 - 13:15 - Session 8 (cont.) - Thursday, April 15th, 2010
Area 3: General Issues in Engineering Education - Innovative Experiences - Chairman: Jaime Sánchez - room H - M1 - Conference Palace (Lienzo Norte) - Avila

	Presenting Author	Title	Authors	Organizations
08D	Sánchez-Alejo, Francisco Javier	The developing of personal and professional skills in automotive engineers through university competitions	Álvarez, Miguel Angel; Aparicio, Francisco; Galindo, Ernest; Sánchez Alejo, Francisco Javier	Institut Supérieur de l'Automobile et des Transports (France); Technical University of Madrid-UPM (Spain)
	Andrés-Gutiérrez, Juan José	MotionLab	Andrés Gutiérrez, Juan José; González, Miguel; Zayas Gómez, David	Telefónica R&D (Spain); University of Valladolid (Spain)
	Jordá-Albiñana, Begoña	Reflections about Teaching Engineering Graphics: Knowledge and Competencies Management	Jordá Albiñana, Begoña; Rojas Sola, José Ignacio	Technical University of Valencia-UPV (Spain); University of Jaén (Spain)
	Piedra, Nelson	Measuring collaboration and creativity skills through rubrics	Chicaiza, Janneth; López, Jorge; Piedra, Nelson; Romero, Audrey; Tovar, Edmundo	Technical Particular University of Loja (Ecuador); Technical University of Madrid-UPM (Spain)

13:15 - 13:45 - Refreshment Break - Conference Palace (Lienzo Norte) - Avila
13:45 - 14:30 - Keynote Speaker Session - room H - SC - Conference Palace (Lienzo Norte) - Avila

Patricia Manson - Head of Unit, Cultural Heritage and Technology Enhanced Learning - Directorate General Information Society and Media of the European Commission	Learning in the 21st century: Technology-Enhanced Learning and European research
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14:30 - 14:45 - EDUCON Awards ceremony - room H - SC - Conference Palace (Lienzo Norte) - Avila
IEEE EDUCON 2010 Meritorious Service Award - Dr. Russell D. Meier
IEEE Education Society Chapter Achievement Award 2009 - Portugal Chapter - Jose Salvado, Jose Carlos Metrolho, Co-Chairs
14:45 - 16:00 - Cocktail - Conference Palace (Lienzo Norte) - Avila
16:30 - Avila Guided Tour - buses from the Conference Palace (Lienzo Norte) - Avila
19:00 - Social Activity Los Talaos - Conference Palace (Lienzo Norte) - Avila
21:00 - Dinner in Palacio Los Velada - buses from the Conference Palace (Lienzo Norte) - Avila
23:00 - Bus back to Madrid - buses from the Palacio los Velada - Avila
Friday, April 16th, 2010
9:30 - 12:00 - Registration Open - Forestry Engineering building - UPM
9:30 - 10:30 - Session 9
Area 1: Uses of Technology in the Classroom - Learning Experiences - Chairman: Cristophe Gravier - room M - 2 - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
09A	Barone, Dante Augusto Couto	Challenges in an Emerging Country: A Digital Divide Case Using Robotics	Barone, Dante Augusto Couto; Gomes, Marcelo Carboni; Horwath, Karla Chagas	UFRGS (Brazil)
	Leo, Tommaso	Team Teaching for Web Enhanced Control Systems Education of Undergraduate Students	Falsetti, Carla; Leo, Tommaso; Manganello, Flavio; Pistoia, Antonio	Technical University delle Marche (Italy)
	Premchaiswadi, Wichian	Enhancing Learning Systems by using Virtual Interactive Classrooms and Web-based Collaborative Work	Jongsawat, Nipat; Premchaiswadi, Wichian; Tungkasthan, Anucha	Siam University (Thailandia)
	Alvarez, Teresa	How can Apache help to teach and learn automatic control?	Álvarez, Teresa; Francisco, Jesús; Herrero, David; Madrigal, David	University of Valladolid (Spain)

Area 4: Active Learning - Collaborative learning - Chairman: Rachida Ajhoun - room M - G - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
09B	Martinich, Leslie P	Retaining and Retraining: An Innovative Approach to Educating Engineers in a Changing Economy	Martinich, Leslie P; Polito, Catherine	Engineering Leadership Institute-Competitive Focus (USA); University of Texas at Austin (USA)
	Martín, Estefanía	Active Learning in Telecommunication Engineering: A case study	Hernán Losada, Isidoro; Lázaro, Carlos; Martín, Estefanía	University Rey Juan Carlos (Spain)
	Sim, Tze Ying	Reviews and Findings on Implementing Active Learning in a Large Class Environment	Sim, Tze Ying; Vogel-Heuser, Birgit	University Kassel (Germany); Technische Universität München (Germany)
	Muñoz-Fernández, Isabel	Cooperative Learning vs. Project Based Learning: a practical case	García Martín, Javier; López Puche, Pilar; Muñoz Fernández, Isabel; Pérez Martínez, Jorge Enrique; Sierra Alonso, Almudena	Technical University of Madrid-UPM (Spain); University Rey Juan Carlos (Spain)

9:30 - 10:30 - Session 9 (cont.) - Friday, April 16th, 2010
Area 1: Collaborative and Social Technologies - Coll. and projects works - Chairman: Marinela Garcia Fernandez - room M - FP - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
09C	Carroll, John M.	Distributed Collaborative Homeworks: Learning Activity Management and Technology Support	Borge, Marcela;Carroll, John M.;Ganoe, Craig;Jiang, Hao	The Pennsylvania State University (USA)
	Vasileva, Tania Krumova	Tools for Collaborative Development of Visual Models and Languages	Allert, Heidrun;Richter, Christoph;Tchoumatchenko, Vassiliy Platonovitch;Vasileva, Tania Krumova	Technical University of Sofia (Bulgaria)
	Hasna, Abdallah	Embedding Sustainability in Capstone Engineering Design Projects	Hasna, Abdallah	The University of Southern Queensland (Australia)
	Raud, Zoja	Project-Based Collaborative Learning of Electrical Master Students	Raud, Zoja;Vodovozov, Valery	Tallinn University of Technology (Estonia)

Area 4: e-Assessment and new Assessment Theories and Methodologies - Theories - Chairman: Fernando Pescador - room M - 7 - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
09D	Wyne, Mudasser F.	Ensure Program Quality: Assessment A Necessity	Wyne, Mudasser F.	National University (USA)
	Yaman, Seniz	Paper-Based versus Computer-Based Testing in Engineering Education	Cagiltay, Nergiz;Yaman, Seniz	Atilim University (Turkey)
	Samoila, Cornel	Methods of the quality assurance applied at remote laboratory selection	Cotfas, Daniel;Cotfas, Petru;Samoila, Cornel;Stefan, Alexandru;Ursutiu, Doru	Transylvania University of Brasov (Romania);Bloomfield College (USA)
	Pierce McMahon, Joana	Introducing alternative assessment into engineering language education at the Madrid Technical University	Durán Escribano, Pilar;Pierce McMahon, Joana;Ubeda Mansilla, Paloma	Technical University of Madrid-UPM (Spain)

9:30 - 10:30 - Session 9 (cont.) - Friday, April 16th, 2010
OCW-Universia Special Session: OCW and Open Educational Resources - Chairman: Edmundo Tovar - room M - M - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
09E	Tovar, Edmundo	OCW Consortium: learning through the worldwide sharing and use of free, open, high-quality education materials organized as courses	Tovar, Edmundo	Technical University of Madrid-UPM (Spain)
	Aranzadi, Pedro	Role of regional consortia in OCWC: OCW-Universia	Aranzadi, Pedro; Capdevilla, Ramón	Universia (Spain)
	Carson, Stephen E; Forward, Mary Lou	Development of the OCW Consortium	Carson, Stephen E; Forward, Mary Lou	MIT OpenCourseWare - OpenCourseWare Consortium

VISIR Special Session: Workshop on VISIR electrical and electronic remote lab - Chairman: Javier García-Zubía - room M - A3 - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
09F	Garcia-Zubía, Javier; Gustavsson, Ingvar	Workshop on VISIR electrical and electronic remote lab: Principles and educational view	Garcia Zubía, Javier; Gustavsson, Ingvar	Faculty of Engineering, University of Deusto (SPAIN); Blekinge Institute of Technology, (Sweden).

10:30 - 11:00 - Coffee Break - Forestry Engineering building - UPM
11:00 - 12:00 - Session 10
Area 1: Adaptive and Personalized Technology-Enhanced Learning - Chairman: Doru Ursutiu - room M - 2 - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
10A	Duda, Andrzej	Indexing and Searching Learning Objects in a Peer-to-Peer Network	Bulkowski, Aleksander;Duda, Andrzej;Nawarecki, Edward	Grenoble Institute of Technology (France);AGH University of Science and Technology (Poland)
	Madeira, Rui Neves	Public Displays and Mobile Devices in an Augmented Objects Framework for Ubiquitous Learning	Madeira, Rui Neves	ESTSetúbal/IPS (Portugal)
	Perez-Rodriguez, Roberto	Adaptation in a PoEML-based E-learning Platform	Anido Rifon, Luis;Caeiro Rodríguez, Manuel;Pérez Rodríguez, Roberto	University of Vigo (Spain)
	Ajhoun, Rachida	Madar learning : learning envirmnt for E&M learning	Najima, Daoudi;Ajhoun, Rachida	ENSIAS UM5S (Morocco);ENSIAS UM5S (Morocco)

11:00 - 12:00 - Session 10 (cont.) - Friday, April 16th, 2010
Area 3: Specific Engineering Disciplines - Professional Developments - Chairman: Cornel Samoila - room M - G - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
10B	Page, Helen	ESA Hands-on Space Education Project Activities for University Students: Attracting and Training the Next Generation of Space Engineers	Walker, Roger;Galeone, P.; Page, Helen; Castro, A.; Emmna, F.; Callens, N.; Ventura-Traveset, J.	European Space Agency (Netherlands, The);ESA Education Office (Spain)
	Galán, Santos	A competitive collaborative learning experience in chemical plant design	Galán, Santos	Technical University of Madrid-UPM (Spain)
	McIntyre, Michael	Introducing Project Management Theory into a Capstone Design Sequence	McIntyre, Michael;Wilson, Stacy	Western Kentucky University (USA)
	Romanovs, Andrejs	Information Technology in Logistics: Teaching Experiences, Infrastructure and Technologies	Merkuryev, Yuri;Romanovs, Andrejs;Soshko, Oksana	Riga Technical University (Latvia)

Area 2: Virtual Worlds for Acad., Org., Life-long Learning and training - Virtual media and tools - Chairman: Michael E. Auer - room M - FP - Forestry Eng. building - UPM

	Presenting Author	Title	Authors	Organizations
10C	Gil, Charo	Fingerprint Identification in LMS and its Empirical Analysis of Engineer Students' Views	Castro Gil, Manuel Alonso;Díaz, Gabriel;Gil, Rosario	Spanish University for Distance Education-UNED (Spain)
	Muñoz, Javier	A Virtual Photovoltaic Power Systems Laboratory	Díaz, Pablo;Muñoz, Javier	Technical University of Madrid-UPM (Spain);University of Alcalá (Spain)
	Garbi Zutin, Danilo	Lab2go - A Repository to Locate Educational Online Laboratories	Auer, Michael E.;Garbi Zutin, Danilo;Maier, Christian;Niederstätter, Michael	Carinthia University of Applied Sciences (CUAS) (Austria)

11:00 - 12:00 - Session 10 (cont.) - Friday, April 16th, 2010
Telefónica Special Session: Telefonica University Chairs Network - Chairman: Fabián García-Pastor - room M - M - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
10D	García-Pastor, Fabian	Telefónica University Chairs Network	García Pastor, Fabian	Telefónica (Spain)
	Val, Jose Luis del	LMS and Web 2.0 Tools for e-Learning: University of Deusto's Experience.Taking Advantage of Both	Val, Jose Luis del	University of Deusto (Spain)
	Jofre, Lluís	Attracting Student Vocations into Engineering Careers. EnginyCAT: Catalonia Promotional and Prospective Plan	Jofre, Lluís	Polytechnic University of Catalunya (Spain)
	Lozano-Tello, Adolfo	The LULA Project by the Telefónica Chair of the University of Extremadura - LULA Linux Distribution for Latin American Universities	Blanco Galán, Marcos;Lozano Tello, Adolfo	University of Extremadura (Spain)

Area 5: Lifelong Learning and Nontraditional Students - Practical experiences - Chairman: Gabriel Diaz - room M - 7 - Forestry Engineering building - UPM

	Presenting Author	Title	Authors	Organizations
10E	Zimmermann, Martin	Experiences in Using Integrated Multimedia Streaming Services to Support E-Learning in Manufacturing Processes	Zimmermann, Martin	University of Applied Sciences Offenburg (Germany)
	Arias, Manuel	Influence of PBL Practical Classes in Microcontroller-Based Digital Systems Learning	Arias, Manuel;F. Linera, Francisco;G. Lamar, Diego; Hernando, Marta;Rodríguez, Alberto	University of Oviedo (Spain)
	García Doval, Fátima Mª	TICTAC: Information and Communication Technologies for Augmentative Communication Boards	García Doval, Fátima Mª;Pousada Carballo, José Mª; Vez Jeremías, José Manuel	CEE Manuel López Navalón (Spain);Education Sciences Institute-USC (Spain);University of Vigo (Spain)
	Montero, Eduardo	Integrating digital video resources in teaching e-learning engineering courses	Beltrán de Heredia, Álvaro;González, María Jesús; Martínez, David;Montero, Eduardo	La Fresquera Producciones Audiovisuales, Burgos (Spain);University of Burgos (Spain)